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EXAMINER

LEE, TOMMY D

ART UNIT

PAPER NUMBER

2624

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/722,270

Applicant(s)

TONAMI ET AL.

Examiner

Thomas D. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-95 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-11, 25-27, 43-46, 55, 61-64, 69, 74, 80, 85, 90 and 95 is/are allowed.
- 6) ☒ Claim(s) 1-8, 12-24, 28-42, 47-54, 56-60, 65-68, 70-73, 75-79, 81-84, 86-89 and 91-94 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office action is responsive to applicant's amendment filed December 6, 2004. Claims 1-95 are pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-8, 12-24, 28-42, 47-54, 56-60, 65-68, 70-73, 75-79, 81-84, 86-89 and 91-94 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Independent claims 1, 15, 33, 56 and 58-60 have been amended to recite:

"wherein re-quantization is performed, after the multi-level quantization is performed, in which, for a pixel having a specific quantization level, image data having an error added thereto according to the error diffusion method is compared with a threshold, and a final output value is determined." Applicant cites steps S4 – S8 in Fig. 2 of the current application as illustrating the re-quantization process (page 33 of applicant's amendment filed December 6, 2004). However, these steps only show a single

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quantization process, as no prior quantization process is performed prior to the cited steps. Furthermore, Figs. 1, 5, 10 and 13 each show only one quantization part (111). Thus, a re-quantization of already-quantized image data, as now recited in the claims, is not disclosed in the specification.

If applicant contends that re-quantization is performed as a result of the feedback loop via error storage part and diffusion error calculation part, this is not a second quantization process on the same image data. Rather this is a quantization of subsequent image data, which is inherent in all error diffusion processes and is disclosed in the previously-cited prior art (U.S. Patent 6,160,921 (Marcu), at column 8, lines 59-66).

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 15-24, 28-42 and 47-54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claims 15 and 33 recite the limitation "the error diffusion method" in line 9 of claim 15 and line 8 of claim 33. There is insufficient antecedent basis for this limitation in the claim. The multi-level quantizing step recited in claim 15 and corresponding part for multi-level quantizing multilevel input data recited in claim 33 are not indicated as performing an error diffusion method. Claims 16-24 and 28-32 depend from claim 15, and claims 34-42 and 47-54 depend from claim 33.

Claim Rejections - 35 USC § 102

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 15, 16, 18, 20-24, 29, 33, 34, 36, 38-42, 48, 50-54, 56-60, 75 and 91-94 are rejected under 35 U.S.C. 102(e) as being anticipated by Marcu.

Regarding claims 15, 16, 18, 20-24 and 29, Marcu discloses an image processing method, comprising the steps of multi-level quantizing multi-tone image data (image data values can be quantized to multiple levels (column 3, lines 6-8; column 9, lines 66-67)); and repressing occurrence of one or more specific quantized levels for a specific level region of the image data relating to the one or more specific quantized levels (in highlight (range 230-255) and shadow (range 25-40) regions, isolated dots may be removed (column 4, lines 46-56)). Re-quantization is performed for the one or more specific quantized levels, occurrence of which is to be repressed (removal of isolated dots amounts to re-quantization to either the lowest or highest values, depending on whether the region is highlight or shadow). Occurrence of the one or more specific quantized levels is repressed for a high level region of the image data (isolated dots removed from highlight region (column 4, lines 46-56)). An occurrence rate of the one or more specific quantized levels, occurrence of which is to be repressed, is controlled based on the number of pixels quantized to quantized levels higher than 0, or to a specific quantized level, in a specific region in the periphery of a target pixel and the level of the image data of the target pixel (In shadow region, if no white dot located alone a road map, a white dot is placed at the current pixel; if white

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dot is detected, then the current pixel is set to a black value (column 9, lines 4-27). In highlight region, converse process is carried out (column 9, lines 28-35)). A degree of repressing occurrence of the one or more specific quantized levels is changed according to a feature of the image (repression confined to shadow and highlight regions (column 8, lines 42-58)).

Regarding claims 33, 34, 36, 38-42, 48 and 50-54, Marcu discloses an image processing apparatus, comprising a first part multi-level quantizing multi-level input image data (image data values can be quantized to multiple levels (column 3, lines 6-8; column 9, lines 66-67)); and a second part repressing occurrence of one or more specific quantized levels for a specific level region of the image data relating to the one or more specific quantized levels (in highlight (range 230-255) and shadow (range 25-40) regions, isolated dots may be removed (column 4, lines 46-56)). Said second part performs re-quantization for the one or more specific quantized levels, occurrence of which is to be repressed (removal of isolated dots amounts to re-quantization to either the lowest or highest values, depending on whether the region is highlight or shadow). Said second part represses occurrence of the one or more specific quantized levels for a high level region of the image data (isolated dots removed from highlight region (column 4, lines 46-56)). Said second part controls occurrence rates of the one or more specific quantized levels, occurrence of which is to be repressed, based on the number of pixels quantized to quantized levels higher than 0, or to a specific quantized level, in a specific region in the periphery of a target pixel and the level of the image data of the target pixel (In shadow region, if no white dot located alone a road map, a white dot is

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placed at the current pixel; if white dot is detected, then the current pixel is set to a black value (column 9, lines 4-27). In highlight region, converse process is carried out (column 9, lines 28-35)). Said second part changes degrees of repressing occurrence of the one or more specific quantized levels according to a feature of the image (repression confined to shadow and highlight regions (column 8, lines 42-58)).

Regarding claims 56 and 57, Marcu discloses an image processing apparatus, comprising: a first part adding an error to input image data (column 8, lines 30-32); a second part multi-level quantizing the image data to which the error is already added by said first part, using a plurality of quantization thresholds (column 8, lines 36-42; column 2, line 66-column 3, line 8; column 9, lines 59-67); a third part re-quantizing the quantized data provided by said second part, to another quantized level, for one or more specific quantized levels other than the highest quantized level and quantized level 0, as the need arises, and outputting the thus-obtained data as an output image data (column 8, lines 42-56; column 9, lines 4-35); a fourth part obtaining the error to be added to the input image data, from the output image data and image data to which the error is already added by said first part, and providing the thus-obtained error to said first part (column 8, lines 57-61); and a fifth part detecting, from the output image data, the number of pixels quantized to be higher than the quantized level 0 in a specific region in the periphery of a target pixel, and providing the thus-obtained number to said third part (column 9, lines 14-32), wherein said third part comprises a threshold, relating to each of said one or more specific quantized levels, determined based on the number provided by said fifth part, with the level of the image data to which the error is already

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added, and, thereby, determines whether re-quantization for said each of said one or more specific quantized levels is necessary, occurrence of each of said one or more specific quantized levels being repressed in a specific level region of the input image data relating to said each of said one or more specific quantized levels through the re-quantization by said third part (column 8, lines 44-56). Said third part determines that re-quantization is not necessary when the level of the input image data is out of said specific level region relating to each of said one or more specific quantized levels (column 8, lines 57-58).

Regarding claim 58, Marcu discloses an image processing apparatus, comprising: a first part adding an error to input image data (column 8, lines 30-32); a second part multi-level quantizing the image data to which the error is already added by said first part, using a plurality of quantization thresholds (column 8, lines 36-42; column 2, line 66-column 3, line 8; column 9, lines 59-67); a third part re-quantizing the quantized data provided by said second part, to another quantized level, for one or more specific quantized levels other than the highest quantized level and quantized level 0, as the need arises, and outputting the thus-obtained data as an output image data (column 8, lines 42-56; column 9, lines 4-35); a fourth part obtaining the error to be added to the input image data, from the output image data and image data to which the error is already added by said first part, and providing the thus-obtained error to said first part (column 8, lines 57-61); and a fifth part detecting, from the output image data, the number of pixels quantized to be higher than the quantized level 0 in a specific region in the periphery of a target pixel, and providing the thus-obtained number to said

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third part (column 9, lines 14-32), wherein said third part comprises a threshold, relating to each of said one or more specific quantized levels, determined based on the number provided by said fifth part and the level of the input image data, with the level of the image data to which the error is already added, and, thereby, determines whether re-quantization for said each of said one or more specific quantized levels is necessary, occurrence of each of said one or more specific quantized levels being repressed in a specific level region of the input image data relating to said each of said one or more specific quantized levels through the re-quantization by said third part (column 8, lines 44-56).

Regarding claim 59, Marcu discloses an image processing apparatus, comprising: a first part adding an error to input image data (column 8, lines 30-32); a second part multi-level quantizing the image data to which the error is already added by said first part, using a plurality of quantization thresholds (column 8, lines 36-42; column 2, line 66-column 3, line 8; column 9, lines 59-67); a third part re-quantizing the quantized data provided by said second part, to another quantized level, for one or more specific quantized levels other than the highest quantized level and quantized level 0, as the need arises, and outputting the thus-obtained data as an output image data (column 8, lines 42-56; column 9, lines 4-35); a fourth part obtaining the error to be added to the input image data, from the output image data and image data to which the error is already added by said first part, and providing the thus-obtained error to said first part (column 8, lines 57-61); and a fifth part detecting, from the output image data, the number of pixels for each quantized level in a specific region in the periphery of a

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target pixel, and providing the thus-obtained number to said third part (column 9, lines 14-32), wherein said third part comprises a threshold, relating to each of said one or more specific quantized levels, determined based on the total number of pixels of each of said one or more specific quantized levels and one or more other quantized levels near to said each of the one or more specific quantized levels and the level of the input image data, with the level of the image data to which the error is already added, and, thereby, determines whether re-quantization for said each of said one or more specific quantized levels is necessary, occurrence of each of said one or more specific quantized levels being repressed in a specific level region of the input image data relating to said each of said one or more specific quantized levels through the re-quantization by said third part (column 8, lines 44-56).

Regarding claim 60, Marcu discloses an image processing apparatus, comprising: a first part adding an error to input image data (column 8, lines 30-32); a second part multi-level quantizing the image data to which the error is already added by said first part, using a plurality of quantization thresholds (column 8, lines 36-42; column 2, line 66-column 3, line 8; column 9, lines 59-67); a third part re-quantizing the quantized data provided by said second part, into another quantized level, for one or more specific quantized levels, as the need arises, and outputting the thus-obtained data as an output image data (column 8, lines 42-56; column 9, lines 4-35); a fourth part obtaining the error to be added to the input image data, from the output image data and image data to which the error is already added by said first part, and providing the thus-obtained error to said first part (column 8, lines 57-61); and a fifth part detecting, from

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the output image data, the number of pixels quantized to be higher than the quantized level 0 in a specific region in the periphery of a target pixel, and providing the thus-obtained number to said third part (column 9, lines 14-32), wherein said third part has a signal indicating a feature of an image region to which the target pixel belongs input thereto from the outside, and comprises a threshold, relating to each of said one or more specific quantized levels, determined based on the total number of pixels of each of said one or more specific quantized levels, determined based on a parameter relating to said each of said one or more specific quantized levels determined according to the feature indicated by said signal, the number provided by said fifth part and the level of the input image data, with the level of the image data to which the error is already added, and, thereby, determines whether re-quantization for said each of said one or more specific quantized levels is necessary, occurrence of each of said one or more specific quantized levels being repressed in a degree according to said feature in a specific level region of the input image data relating to said each of said one or more specific quantized levels through the re-quantization by said third part (column 8, lines 44-56).

Regarding claim 75, a sixth part generating said signal input to said third part is inherent in Marcu, for re-quantization in Marcu inherently requires at least an input of the quantized image data, image data of peripheral pixels, and threshold data for determining whether the quantized data needs to be re-quantized based on the quantization levels of the peripheral pixels.

Regarding claims 91-94, Marcu discloses a computer-readable recording medium storing therein a program for causing a computer to carry out the function of each part of the image processing apparatus as claimed in claims 56 and 58-60, respectively (as recited in Marcu's claims 19-26, a computer-readable recording medium is provided for causing a computer to execute the above steps).

As mentioned above, the limitation added to independent claims 15, 33, 56: "wherein re-quantization is performed, after the multi-level quantization is performed, in which, for a pixel having a specific quantization level, image data having an error added thereto according to the error diffusion method is compared with a threshold, and a final output value is determined," is not disclosed in the specification. However, if applicant contends that re-quantization is performed as a result of the feedback loop via error storage part and diffusion error calculation part, as shown in applicant's Figs. 1, 5, 10 and 13, then the examiner asserts that this limitation is inherent in all error diffusion processes and is disclosed in Marcu (column 8, lines 59-66).

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 1-8, 12-14, 31, 32, 76-79, 81-84 and 86-89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marcu.

Regarding claim 1, Marcu discloses an image forming method, comprising the steps of multi-level quantizing a multi-tone image by an error diffusion method (image

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data values can be quantized to multiple levels, by error diffusion (column 2, line 66- column 3, line 8; column 9, lines 59-67)); and representing each pixel of the thus-quantized image having a quantized level higher than 0 using a dot (read Abstract), wherein occurrence of dots is repressed in a specific shade region relating to the dots (in highlight (range 230-255) and shadow (range 25-40) regions, isolated dots may be removed (column 4, lines 46-56)).

In Marcu, the dots are not disclosed as becoming larger as the quantized level thereof is higher, or repression of dots having a specific size. However, it is well known in the art of printing that multi-level image data can be formed on a page in a number of ways, including varying the size of printed dots according to the quantization level of the image data, so that darker quantization levels are printed using larger-sized dots.

Marcu has indicated that the image data output using the error diffusion method disclosed in the reference may be multi-level, and since printing variable-sized dots in order to represent varying quantization levels is generally known, it would have been obvious for one of ordinary skill in the art to modify the teaching of Marcu by providing a printer that prints dots of different sizes, so as to enhance the tonal resolution of the output image.

Regarding claims 2-7, repression of the occurrence of the smallest dots, or dots other than the largest dots, and basing control of an occurrence rate of the dots having the specific size on the number of dots having the specific size in a specific region in the periphery of a target pixel and a shade level of the target pixel, would have been obvious in view of Marcu, where in highlight and shade regions, the appearance of a dot

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at a target pixel location is repressed if one or more dots appear along a road map in the vicinity of the target pixel location (column 9, lines 4-27).

Regarding claim 8, changing the degree of repressing occurrence of the dots having the specific size according to a feature of the image would have been obvious in view of Marcu (repression confined to shadow and highlight regions (column 8, lines 42-58)).

Regarding claims 12-14, performing repression of occurrence of the dots having the specific size for medium and dark shade regions of the image would have been obvious in view of Marcu (shade region defined in the range of 25-40 (column 4, lines 35-38; column 8, lines 47-49), repression performed in shade region (column 4, lines 46-56), which inherently includes medium and dark shade regions).

Regarding claims 31 and 32, Marcu discloses an image forming method comprising the steps of multi-level quantizing multi-tone image data by the image processing methods as claimed in claims 15 and 16 (note rejection of claims 15 and 16 above); and forming an image from the thus-multi-level-quantized image data using dots for pixels (read Abstract). As mentioned above regarding claim 1, while not disclosed in Marcu, it is well known in the art of printing that multi-level image data can be formed on a page in a number of ways, including varying the size of printed dots according to the quantization level of the image data, so that darker quantization levels are printed using larger-sized dots. Marcu has indicated that the image data output using the error diffusion method disclosed in the reference may be multi-level, and since printing variable-sized dots in order to represent varying quantization levels is generally known,

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it would have been obvious for one of ordinary skill in the art to modify the teaching of Marcu by providing a printer that prints dots of different sizes, so as to enhance the tonal resolution of the output image.

Regarding claims 76-79, the apparatus of Marcu further comprises a sixth part which forms an image from the image output data (column 3, lines 6-9). Marcu does not use dots for pixels which dots are larger as the pixels have higher quantized levels. However, as mentioned above with respect to claim 1, it is well known in the art of printing that multi-level image data can be formed on a page in a number of ways, including varying the size of printed dots according to the quantization level of the image data, so that darker quantization levels are printed using larger-sized dots. Marcu has indicated that the image data output using the error diffusion method disclosed in the reference may be multi-level, and since printing variable-sized dots in order to represent varying quantization levels is generally known, it would have been obvious for one of ordinary skill in the art to modify the teaching of Marcu by providing a printer that prints dots of different sizes, so as to enhance the tonal resolution of the output image.

Regarding claims 81-84, Marcu does not disclose a sixth part generating the input image by optically scanning an original, as Marcu is mainly concerned with the processing of image data already obtained. However, the use of an optical scanner for scanning image data to be processed is well known in the art and commonly used for capturing image data from a document. It would have been obvious for one of ordinary skill in the art to provide an optical scanner for scanning documents to be processed in the teaching of Marcu, because of the widespread use of such a device.

Regarding claims 86-89, these claims recite the optical scanning and forming of an image as recited in above-rejected claims 76-79 and 81-84, and are thus rejected for the reasons set forth above.

Once again, the limitation added to independent claim 1: "wherein re-quantization is performed, after the multi-level quantization is performed, in which, for a pixel having a specific quantization level, image data having an error added thereto according to the error diffusion method is compared with a threshold, and a final output value is determined," is not disclosed in the specification. However, if applicant contends that re-quantization is performed as a result of the feedback loop via error storage part and diffusion error calculation part, as shown in applicant's Figs. 1, 5, 10 and 13, then the examiner asserts that this limitation is inherent in all error diffusion processes and is disclosed in Marcu (column 8, lines 59-66).

Allowable Subject Matter

10. Claims 9-11, 25-27, 43-46, 55, 61-64, 69, 74, 80, 85, 90 and 95 are allowed.
11. The following is a statement of reasons for the indication of allowable subject matter: No prior art has been found to disclose or suggest repression of occurrence of dots of a specific size with respect to picture or non-edge regions, as recited in claims 9-11, 25-27, 43-45 and 61-63; or changing degrees of repression according to a specific output mode, as recited in claims 46 and 64. Claim 55 depends from claim 46; and claims 69, 74, 80, 85, 90 and 95 depend from claim 64.

Response to Arguments

12. Applicant's arguments, see page 31 of applicant's amendment, filed December 6, 2004, with respect to the rejection of claims 12-14, 17-19, 28-30, 35-37, 47-49 and 65-74 under 35 U.S.C. 112, second paragraph, have been fully considered and are persuasive. The rejection of these claims has been withdrawn.

13. Applicant's arguments filed on pages 32 and 33 of applicant's amendment with respect to the rejection of claims 15, 16, 18, 20-24, 29, 33, 34, 36, 38-42, 48, 50-54, 56-60, 75 and 91-94 under 35 U.S.C. 102(e), and claims 1-8, 12-14, 31, 32, 76-79, 81-84 and 86-89 under 35 U.S.C. 103(a) have been fully considered but they are not persuasive.

Applicant asserts, on page 32, that Marcu does not actually reduce a number of black dots, rather Marcu controls the position at which a black dot occurs. Applicant states that in contrast to Marcu, the present invention controls the occurrence of the specific dot. Contrary to applicant's assertion, Marcu indeed controls the occurrence of such dots. Marcu states, at column 4, lines 53-56: "If any of the pixels in the neighborhood has a dot value, *a dot is prohibited from being placed at the current pixel.* If, however, no dot is present along the path, a dot can be placed at the current pixel." (emphasis added).

Applicant further states that in the present invention, re-quantization processing is performed. This argument has already been addressed (note above rejections under 35 U.S.C. 112, first paragraph, 102(e) and 103(a)).

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Lee whose telephone number is (571) 272-7436. The examiner can normally be reached on Monday-Friday (7:30-5:00), alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (571) 272-7437. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thomas D. Lee
Primary Examiner
Art Unit 2624

tdl
May 27, 2005